

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
14 April 2005 (14.04.2005)

PCT

(10) International Publication Number
WO 2005/033738 A1

(51) International Patent Classification: G01S 15/89, 7/52

(21) International Application Number: PCT/IT2004/000548

(22) International Filing Date: 5 October 2004 (05.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Date: 8 October 2003 (08.10.2003) IT
FI2003A000254

(71) Applicants (for all designated States except US): ACTIS
ACTIVE SENSORS S.R.L. [IT/IT]; Via Baldanzese, 17,
I-50041 Calenzano (IT). ESAOTE S.P.A. [IT/IT]; Via
Ruffino Aliona, 32, I-15033 Casale Monferrato (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): MASOTTI,
Leonardo [IT/IT]; Via Bolognese, 81, Loc. Montorsoli,
I-50019 Sesto Fiorentino (IT). BIAGI, Elena [IT/IT];
Via F. Caracciolo 27, I-50017 S. Piero A Ponti (IT).

GRANCHI, Simona [IT/IT]; Via D. Alighieri 18, I-52026
Pian Di Sco' (IT). BRESCHI, Luca [IT/IT]; Via Pupile
2, I-59021 Vaiano (IT).

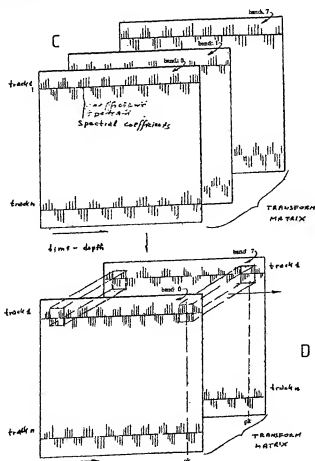
(74) Agents: GIANFRANCO, Mannucci et al.; Uff. Tecn.
Ing. A. Mannucci S.r.l., Via della Scala, 4, I-50123 Firenze
(US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: IMPROVED METHOD AND DEVICE FOR LOCAL SPECTRAL ANALYSIS OF AN ULTRASONIC SIGNAL



(57) Abstract: The method decomposes the radio frequency
signal into sub-bands by filtering, for example with a time-fre-
quency transform. From the coefficients acquired through de-
composition a matrix of spectral coefficients is obtained, from
which local estimators are obtained, constituted in particular
by the coefficients of the interpolating polynomials. The statis-
tical distribution of the local estimators is evaluated in win-
dows overlaid on the ultrasound frame. The conformation of
the distribution histograms of the spectral coefficients provides
a parameter which, combined with the local estimators, pro-
vides weighted local estimators, which contain spectral infor-
mation useful in the identification of specific structures in the
organ subjected to ultrasound analysis.

WO 2005/033738 A1



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.